

## **ABSTRACT**

A laser power grid is presented, for operation with data networks, employing WDM multiplexing, and incorporating wavelength addressing. The laser power grid includes a laser power supply station, comprising a plurality of continuous-wave laser sources; a laser distribution grid, formed as an optical fiber, or as a plurality of optical fibers, for distributing light propagations of different wavelengths throughout a data network, to supply it with laser power; and an optical switching network, coupled to the laser distribution grid, for turning the laser power on, locally, where it is needed. The laser power grid replaces systems of tunable lasers in known data networks; it is considerably faster and cheaper than systems of tunable lasers and produces less waste heat within the data network surroundings. The laser power grid incorporates parallel fast optical communication in complex multi-node communication and computer networks and enables the implementation of burst switching and packet switching by wavelength addressing. It is particularly cost effective as the routing paradigm in inter-chip, inter-board, and inter-cabinet applications, as well as between distant sites, in a wide spectrum of applications, in both the telecom and datacom arenas.

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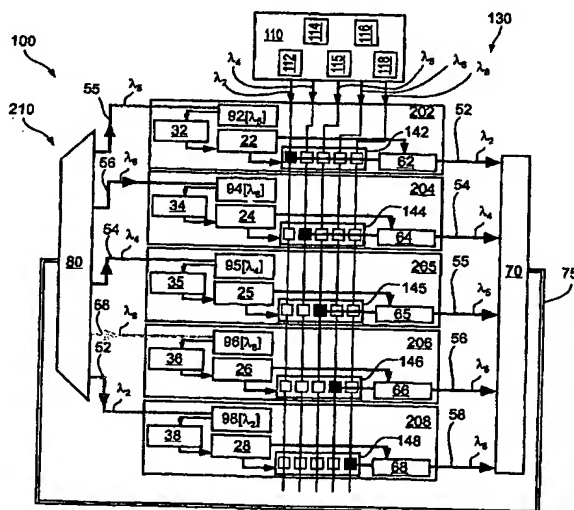
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- (71) Applicant (for all designated States except US): YISSUM RESEARCH DEVELOPMENT COMPANY OF THE HEBREW UNIVERSITY OF JERUSALEM [IL/IL]; Hi Tech Park, The Edmond J. Safra Campus, The Hebrew University of Jerusalem, 91 390 Givat Ram (IL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): AGRANAT, Aharon, J. [IL/IL]; 29 HaArazim Street, 90 805 Mevasseret Zion (IL).
- (74) Agent: G.E. EHRLICH (1995) LTD.; 11 Menachem Begin Street, 52 521 Ramat-Gan (IL).
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(54) Title: LASER POWER GRID



(57) Abstract: A laser power grid for operation with data networks, employs WDM, and incorporates wavelength addressing. The laser power grid (100) includes a laser power supply station (110), comprising a plurality of continuous-wave laser sources (112, 114, 116, 118), a laser distribution grid (130), for distributing light propagations of different wavelengths throughout a data network, and an optical switching network (142, 144, 145, 146, 148) coupled to the laser distribution grid, for locally turning the laser power on, where it is needed. The laser power grid replaces systems of tunable lasers. It is considerably faster and cheaper than systems of tunable lasers and produces less waste heat within the data network surroundings. The laser power grid incorporates parallel fast optical communication in complex multi-node communication and computer networks and enables the implementation of burst switching and packet switching by wavelength addressing.

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